

EXAMINER'S AMENDMENT

Claims 21-27, 29-38, and 62-65 are allowed.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michele Yoder on March 19, 2008.

The application has been amended as follows:

In the claims:

Claims 1-20 (Cancelled).

Claim 21 (Currently Amended): An aluminum ingot casting machine as claimed in claim 20 comprising:
a source of molten metal;
a rotatable annular ring, said ring defining a space inside said ring, said annular ring having a generally vertical axis of rotation and being sized and shaped to

carry a plurality of ingot casting molds, the annular ring comprising a mold-carrying carousel and a support structure supporting the carousel, the support structure comprising an inner and an outer circular rail; and

a drive means, located substantially outside said space, for indexing said molds to said source of molten metal by rotating said annular ring, the drive means comprising a drive gear means fixed to one of said circular rails, and a drive sprocket for driving said drive gear means; and

a water sprayer cooling system located below said annular ring, the cooling system including a plurality of nozzles located above a water tray located beneath the annular ring for spraying water onto said molds wherein said water tray includes an upstanding side wall which is curved in plan view to follow said annular ring and said water tray includes a certain level of water therein.

Claim 22 (Original): An aluminum ingot casting machine as claimed in claim 21 wherein said steam retaining skirt extends below said level of water contained within said water tray wherein steam is trapped below said annular ring by said steam retaining skirt.

Claim 23 (Original): An aluminum ingot casting machine as claimed in claim 22 wherein said water tray includes end walls which define a water free region below said annular ring, said water free region being sized and shaped to permit the pouring and skimming of ingots.

Claim 24 (Original): An aluminum ingot casting machine as claimed in claim 23 wherein said end walls include slots to permit said steam retaining skirt to pass through said end walls.

Claim 25 (Original): An aluminum ingot casting machine as claimed in claim 24 wherein said slots are sized and shaped to control an amount of water that escapes from said water tray through said slots.

Claim 26 (Original): An aluminum ingot casting machine as claimed in claim 25 further including a collection tray to capture water which escapes from said slot for recirculation.

Claim 27 (Currently Amended): An aluminum ingot casting machine as claimed in claim 47-21 wherein said water spray cooling system is sized to permit different amounts of cooling to be provided at different positions around said annular ring.

Claim 28 (Cancelled).

Claim 29 (Currently Amended): An aluminum ingot casting machine as claimed in claim ~~28~~-31 wherein said tilter frames include latches to retain the crucibles to the tilter frames when in use.

Claim 30 (Currently Amended): An aluminum ingot casting machine as claimed in claim 28 31 wherein said tilter frames include actuators to tilt the crucibles to pour molten metal into said launder.

Claim 31 (Currently Amended): An aluminum ingot casting machine as ~~claimed in claim 28~~ comprising:

a source of molten metal, the source of molten metal comprising at least two pivoting crucibles removably placed in tilter frames to permit continuous pouring of molten aluminum;

a rotatable annular ring, said ring defining a space inside said ring, said annular ring having a generally vertical axis of rotation and being sized and shaped to carry a plurality of ingot casting molds;

a drive means, located substantially outside said space, for indexing said molds to said source of molten metal by rotating said annular ring; and

a Y-shaped launder, the launder having first and second receiving portions for receiving molten metal, the first receiving portion being positioned to receive molten metal from one of said crucibles and the second receiving portion being positioned to receive molten metal from another of said crucibles, the launder further comprising a molten metal delivery portion extending between the receiving portions and the carousel and wherein said tilter frames further include an encoder to measure a tilt position of said crucibles.

Claim 32 (Original): An aluminum ingot casting machine as claimed in claim 31 further including an automatic control for tilting said crucibles in a controlled manner for pouring, based on said position encoder.

Claim 33 (Original): An aluminum ingot casting machine as claimed in claim 32 wherein said controlled manner pouring includes having an adjustor to vary a speed of tilting said crucibles to ensure an even rate of pour of molten metal into said molds.

Claim 34 (Original): An aluminum ingot casting machine as claimed in claim 32 further including a manual control to allow an operator to tilt a crucible to a pouring point before turning on the automatic control.

Claim 35 (Currently Amended): An aluminum ingot casting machine as claimed in claim ~~28~~31 wherein one crucible is larger than the other crucible.

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Claim 36 (Currently Amended): An aluminum ingot casting machine ~~as~~
~~claimed in claim 28~~ comprising:

a source of molten metal, the source of molten metal comprising at least
two pivoting crucibles removably placed in tilter frames to permit continuous pouring of
molten aluminum;

a rotatable annular ring, said ring defining a space inside said ring, said
annular ring having a generally vertical axis of rotation and being sized and shaped to
carry a plurality of ingot casting molds;

a drive means, located substantially outside said space, for indexing said
molds to said source of molten metal by rotating said annular ring; and

a Y-shaped launder, the launder having first and second receiving portions
for receiving molten metal, the first receiving portion being positioned to receive molten
metal from one of said crucibles and the second receiving portion being positioned to
receive molten metal from another of said crucibles, the launder further comprising a
molten metal delivery portion extending between the receiving portions and the carousel
and wherein said ~~tilting frame~~ tilter frames automatically ~~returns~~ return to an untilted
position in the event of a loss of power.

Claim 37 (Original): An aluminum ingot casting machine as claimed in
claim 29 wherein said latches include a safety switch to prevent said automatic
controller from moving the tilter frames if said latches are not secured.

Claim 38 (Original): An aluminum ingot casting machine as claimed in
claim 32 wherein said automatic control causes a second crucible to start pouring upon
said first crucible being finished to ensure a substantially continuous flow of molten
metal.

Claims 39-61 (Cancelled).

Claim 62 (Previously Presented): An aluminum ingot casting machine comprising:

- a source of molten metal;

- a rotatable annular ring, said ring defining a space inside said ring, said annular ring having a generally vertical axis of rotation and being sized and shaped to carry a plurality of ingot casting molds;

- a drive means, located substantially outside said space, for indexing said molds to said source of molten metal by rotating said annular ring;

- a demolder means for transferring ingots from said molds and a cooling line for cooling ingots, positioned to receive said ingots from said demolder means, said cooling line including:

 - a conveyer for moving said ingots along said cooling line;

 - a cooling tunnel for enclosing said conveyer;

 - a source of cooling water to spray said ingots moving within said cooling tunnel; and

 - a countercurrent air flow to provide additional heat exchange with said cooling ingots.

Claim 63 (Original): A machine as claimed in claim 62 wherein said conveyer is a walking beam conveyer, having a walking rail and a stationary rail.

Claim 64 (Original): A machine as claimed in claim 63 wherein said walking rail is moved by a hydraulic actuator.

Claim 65 (Previously Presented): A machine as claimed in claim 62 wherein said cooling line further includes entrance and exit air knives on said cooling tunnel for removing extraneous matter from said ingots.

Claim 66-69 (Cancelled).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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